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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/586,349

04/10/2007

Ayala Barak

BARAK=7

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1444 7590 10/25/2011

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EXAMINER

SCHLENTZ, NATHAN W

ART UNIT

PAPER NUMBER

1616

MAIL DATE

DELIVERY MODE

10/25/2011

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/586,349	<b>Applicant(s)</b> BARAK, AYALA	
	<b>Examiner</b> Nathan W. Schlientz	<b>Art Unit</b> 1616	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 June 2011.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on \_\_\_\_; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 5) ☒ Claim(s) 95,97,99-103,105-119,122-125 and 127-137 is/are pending in the application.
- 5a) Of the above claim(s) 109,110,112-119,125,127 and 128 is/are withdrawn from consideration.
- 6) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 7) ☒ Claim(s) 95,97,99-103,105-108,111,122-124,129,130,132 and 134-137 is/are rejected.
- 8) ☒ Claim(s) 131 and 133 is/are objected to.
- 9) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____.                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date ____.  | 6) <input type="checkbox"/> Other: ____.                          |

## **DETAILED ACTION**

### ***Status of the Claims***

1. Claims 95, 97, 99-103, 105-119, 122-125 and 127-137 are pending in the present application. Claims 109, 110, 112-119, 125, 127 and 128 are withdrawn as being drawn to non-elected subject matter. Therefore, claims 95, 97, 99-103, 105-108, 111, 122-124 and 129-137 are examined herein on the merits for patentability.

### ***Allowable Subject Matter***

2. Claims 131 and 133 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

In view of the indicated allowability of the elected species and claims 131 and 133 wherein the nitrogen-containing compound is ammonium carbamate and the hypochlorite oxidant is sodium hypochlorite, the examiner has expanded the search to include non-elected species.

### ***Priority***

3. Applicant's claim for the benefit of a prior-filed application under 35 U.S.C. 119(e) or under 35 U.S.C. 120, 121, or 365(c) is acknowledged. Applicant has not complied with one or more conditions for receiving the benefit of an earlier filing date under 35 U.S.C. 120 as follows:

The later-filed application must be an application for a patent for an invention which is also disclosed in the prior application (the parent or original nonprovisional application or provisional application). The disclosure of the invention in the parent application and in the later-filed application must be sufficient to comply with the requirements of the first paragraph of 35 U.S.C. 112. See *Transco Products, Inc. v. Performance Contracting, Inc.*, 38 F.3d 551, 32 USPQ2d 1077 (Fed. Cir. 1994).

The disclosure of the prior-filed applications, Application Nos. 60/536,811, 60/536,851, 60/536,852, and 60/536,853, fail to provide adequate support or enablement in the manner provided by the first paragraph of 35 U.S.C. 112 for one or more claims of this application. The prior-filed applications do not provide support for the entire scope of claims 95, 97, 99-103, 105-108, 111, 122-124, 129, 132 and 134-137. The prior-filed applications do not provide support for the entire genus of nitrogen-containing compound, as instantly claimed.

Therefore, claims 95, 97, 99-103, 105-108, 111, 122-124, 129, 132 and 134-137 are afforded the effective filing date of 12 January 2005 (the filing date of the international application), and claims 130, 131 and 133 are afforded the effective filing date of 14 January 2004.

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

Art Unit: 1616

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 95, 97, 102, 103, 105, 122, 124, 132 and 134-137 are rejected under 35 U.S.C. 102(b) as being anticipated by Tsuneki et al. (WO 03/096810; the English language equivalent US 2006/0054563 is referred to herein).

Tsuneki et al. disclose a composition for preventing formation of slime which comprises a chlorine-based oxidizing agent (i.e., alkali metal hypochlorites), a sulfamic acid compound (i.e., ammonium salt of sulfamic acid), and a compound selected from an anionic polymer and a phosphonic acid compound, wherein the composition has a pH of 12 or greater, as well as a process for preventing formation of slime in a water system comprising adding said composition to said water system (claims 1, 6, 7 and 9-12). Tsuneki et al. further disclose that the composition comprises sodium hypochlorite having a concentration of effective chlorine of 1 to 8% by weight, and 1.5 to 9% by weight of the sulfamic acid compound (claims 3, 4, 10 and 11).

It is noted that a 1:1 molar ratio of sulfamic acid (97.09 g/mol) to chlorine (70.91 g/mol) is equivalent to a 1.37:1 weight ratio. Therefore, the concentrations of effective chlorine (1 to 8% by weight) and sulfamic acid (1.5 to 9% by weight) include a weight ratio of effective chlorine to sulfamic acid that is at least 1.37:1, which is equivalent to a molar ratio of effective chlorine to sulfamic acid that is at least 1:1.

Art Unit: 1616

6. Claims 95, 97, 102, 103, 105, 122, 124, 130, 132 and 134-137 are rejected under 35 U.S.C. 102(e) as being anticipated by Tsuneki et al. (US 2006/0054563) for the same reasons discussed above.

7. Claims 95, 97, 99, 102, 103, 105, 108, 111, 122-124, 129, 132, 134 and 135 are rejected under 35 U.S.C. 102(e) as being anticipated by Shim et al. (WO 2005/019117).

Shim et al. disclose a method of controlling microbial fouling in an aqueous system, comprising adding a chlorine oxidant (i.e., alkali or alkali earth metal hypochlorite), a sulfamate ion source (i.e., ammonium sulfamate), and a water-soluble bromide ion source to the aqueous system having a pH of 5 to 10 in an amount maintaining a total residue chlorine concentration of 1 to 9 ppm, in an amount maintaining a sulfamate ion concentration of 0.01 to 0.2 mmole/L, and in an amount maintaining a water-soluble bromide ion concentration of 0.005 to 0.125 mmole/L, wherein the chlorine oxidant and the sulfamate ion source are used in a molar ratio of 1:20 or less (claims 1-7).

### ***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 1616

9. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1,148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

10. Claims 95, 97, 99-103, 105-108, 111, 122-124, 129, 130, 132 and 134-137 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuneki et al. (WO 03/096810 and US 2006/0054563) in view of Barak (US 5,976,386 and US 6,132,628).

*Determination of the scope and content of the prior art*

*(MPEP 2141.01)*

The teachings of Tsuneki et al. are discussed above and incorporated herein by reference.

*Ascertainment of the difference between the prior art and the claims*

*(MPEP 2141.02)*

Tsuneki et al. do not explicitly disclose the concentration of hypochlorite immediately prior to mixing with the ammonium sulfamate to be not more than 24,000 ppm as total chlorine. However, Barak teaches that the diluted oxidant has a concentration of 0.1-2%, expressed as  $\text{Cl}_2$  (col. 3, ln. 1-2). Tobar further teaches that the active biocidal ingredient is injected into the liquid being treated to a concentration of 0.5-300 ppm, more preferably 3-10 ppm, expressed as chlorine (col. 2, ln. 46-49).

Also, Tsuneki et al. do not explicitly disclose the concentration of ammonium sulfamate in an aqueous solution is 0.5-60% w/v prior to mixing with the hypochlorite solution. However, Barak teaches the amine source has a concentration of 0.1-50%, more preferably 2.5-30%, and the diluted amine source has a concentration of 0.1-6% (col. 2, ln. 50-60).

Tsuneki et al. do not explicitly disclose mixing in a chamber into and out of which there is a continuous flow of water during the mixing. However, Barak teaches continuously mixing dilutions of the oxidant and amine source into a conduit and continuously injecting the active biocidal ingredient directly from the conduit into the liquid being treated (col. 1, ln. 46-67).

Tsuneki et al. do not explicitly disclose addition of the hypochlorite/ammonium sulfamate solution to waste water. However, Barak teaches compositions comprising a nitrogen-containing compound and a hypochlorite are suitable for controlling microbial or biofilm growth in a medium, such as waste water (Abstract; and col. 3, ln. 37).

Tsuneki et al. do not explicitly disclose addition of a bromide to the solution. However, Barak teaches ammonium bromide as a suitable amine source and an active biocidal ingredient derived from ammonium bromide exhibited superior efficacy and faster rate of kill in basic media as compared to active biocidal ingredients derived from other amine sources (col. 3, ln. 19-22; and claim 1).

*Finding of prima facie obviousness*

*Rational and Motivation (MPEP 2142-43)*



Art Unit: 1616

Therefore, it would have been *prima facie* obvious for one of ordinary skill in the art at the time of the invention to prepare the compositions according to Tsuneki et al. for the treatment of waste water wherein the concentration of sodium hypochlorite immediately prior to mixing with the ammonium sulfamate to be not more than 24,000 ppm at total chlorine, and where the active biocidal ingredient is injected into the liquid being treated to a concentration of 0.5-300 ppm, more preferably 3-10 ppm, expressed as chlorine.

From the teachings of the references, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention. Therefore, the invention as a whole would have been *prima facie* obvious to one of ordinary skill in the art at the time the invention was made, as evidenced by the references, especially in the absence of evidence to the contrary.

11. Claims 95, 97, 99-103, 105-108, 111, 122-124, 129, 130, 132 and 134-137 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shim et al. (WO 2005/019117) in view of Barak (US 5,976,386 and US 6,132,628).

*Determination of the scope and content of the prior art*

*(MPEP 2141.01)*

The teachings of Shim et al. are discussed above and incorporated herein by reference.

*Ascertainment of the difference between the prior art and the claims*

*(MPEP 2141.02)*

Shim et al. do not explicitly disclose the concentration of ammonium sulfamate in an aqueous solution is 0.5-60% w/v prior to mixing with the hypochlorite solution. However, Barak teaches the amine source has a concentration of 0.1-50%, more preferably 2.5-30%, and the diluted amine source has a concentration of 0.1-6% (col. 2, ln. 50-60).

Shim et al. do not explicitly disclose mixing in a chamber into and out of which there is a continuous flow of water during the mixing. However, Barak teaches continuously mixing dilutions of the oxidant and amine source into a conduit and continuously injecting the active biocidal ingredient directly from the conduit into the liquid being treated (col. 1, ln. 46-67).

Shim et al. do not explicitly disclose the aqueous system having a pH of 10.5 or 11.0. However, Shim et al. teach that disinfection efficacy of chlorosulfamate is increased along with an increase of pH (pg. 9, ln. 1-2). Also, Barak teaches that the active biocidal ingredient has a pH of over 10.0 before being introduced into the liquid being treated (claim 5).

*Finding of prima facie obviousness*

*Rational and Motivation (MPEP 2142-43)*

Therefore, it would have been *prima facie* obvious for one of ordinary skill in the art at the time of the invention to prepare the compositions according to Shim et al. for the treatment of waste water wherein the concentration of sodium hypochlorite immediately prior to mixing with the ammonium sulfamate to be not more than 24,000 ppm at total chlorine, and where the active biocidal ingredient is injected into the liquid

Art Unit: 1616

being treated to a concentration of 0.5-300 ppm, more preferably 3-10 ppm, expressed as chlorine.

From the teachings of the references, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention. Therefore, the invention as a whole would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made, as evidenced by the references, especially in the absence of evidence to the contrary.

#### **Contact Information**

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan W. Schlientz whose telephone number is (571)272-9924. The examiner can normally be reached on 9:00 AM to 5:00 PM, Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann R. Richter can be reached on 571-272-0646. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1616

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NWS

/Johann R. Richter/  
Supervisory Patent Examiner, Art Unit 1616